LISTING OF THE CLAIMS

Claims 1-45 (canceled).

46. (new) A method for cryopreservation of oocytes, comprising:

suspending oocytes in an equilibration medium;

rinsing the oocytes in a vitrification solution;

vitrifying the oocyte suspension by dropping microdroplets of said oocyte suspension onto a solid surface that has a temperature between –150°C and –180°C; and

collecting frozen microdroplets that contain vitrified oocytes

wherein said oocytes maintain viability and morphology after thawing.

47. (new) The method of claim 46 wherein the suspending is for a period of about 12-15 minutes at near physiological temperature of 39°C;

48. (new) The method of claim 46 wherein the rinsing is for about 25-30 seconds.

49. (new) The method of claim 46 wherein the vitrification solution comprises an intracellular cryoprotectant; a macromolecule; a sugar; and a surfactant

50. (new) The method of claim 46 wherein the equilibration medium consists of an intracellular cryoprotectant agent, and a macromolecule with surfactant effect at room temperature.

51. (new) The method of claim 49 or 50 wherein the intracellular cryoprotectant is ethylene glycol

52. (new) The method of claim 49 or 50 wherein the macromolecule is polyvinylpyrrolidone.

53. (new) The method of claim 49 wherein the sugar is trehalose.

54. (new) The method of claim 49 or 50 wherein the surfactant is bovine serum albumin, or fetal bovine serum.

55. (new) The method of claim 50 wherein the a base medium is TCM 199.

56. (new) The method of claim 46 further comprising storing the collected frozen microdroplets for at least three weeks prior to thawing.

57. (new) The method of claim 46 further comprising partially or fully removing oocyte cumulus cells prior to equilibration with the equilibration medium.

58. (new) The method of claim 46 wherein the cryoprotective agent raises the vitreous state glass transition temperature in the microdroplets sufficiently to inhibit ice formation.

59. (new) The method of claim 46 further comprising thawing the vitrified oocyte microdroplets at a near physiological temperature of about 39°C for up to about 3 minutes.

60. (new) The method of claim 59 wherein the oocytes are non-human mammalian oocytes.

61. (new) The method of claim 60 further comprising fertilizing the thawed oocyte.

62. (new) The method of claim 61 wherein the fertilized thawed oocyte is incubated to form an embryo.

63. (new) The method of claim 62 wherein incubation is by cumulus cell-coculture with KSOM and fetal bovine serum media.

64. (new) The method of claim 46 wherein the microdroplets have a volume of about 1-10 microliters.

65. (new) The method of claim 46 wherein the microdroplets have a volume of 1 microliter.

66. (new) A population of morphologically intact viable cryopreserved oocytes prepared by the method of claim 46.